CLAIMS

1. A method for fostering somatic embryogenic competence of a plant cell or tissue comprising contacting said plant cell or tissue with a pro-embryogenic arabinosylated protein (AGP) composition and maintaining the cell or tissue in culture to allow the cell or tissue to undergo somatic embryogenesis.

2. The method of claim 1 wherein the plant cell or tissue is of cotton.

3. The method of claim 1 or 2 wherein the plant cell or tissue is selected from the group consisting of Upland cotton, Pima cotton, Egyptian cotton, Sea Island cotton, *G. hirsutum*, *G. barbadense*, tree cotton, Creole cotton, Levant cotton, Sturt's desert rose cotton, Thurber's cotton, and Hawaii cotton.

4. The method of any of claims 1 - 3 wherein the plant cell or tissue is of an elite cotton line.

5. The method of any of claims 1 - 4 wherein the pro-embryogenic AGP composition comprises embryogenic AGP of a cotton variety.

6. The method of claim 5 wherein the pro-embryogenic AGP composition comprises a hydrophobic fraction of embryogenic AGP.

7. The method of any of claim 1 - 6 wherein said AGP composition comprises AGP hydrophobic peak #1 from embryogenic callus from a cotton variety selected from the group consisting of Coker 315, Siokra 1-4, and Sicala 40 at a concentration between about 0.008 and about 0.8 mg/L, and wherein said plant cell or tissue is of a cotton variety that is recalcitrant to somatic embryogenesis.

8. The method of claim 5 wherein the pro-embryogenic AGP composition comprises embrogenic AGP selected from the group consisting of de-glycosylated AGP and de-arabinosylated AGP.

9. The method of claim 5 wherein the pro-embryogenic AGP is a protein having the amino acid sequence of SEQ ID NO: 25.

10. The method of claim 5 wherein the pro-embryogenic AGP is a protein having the amino acid sequence of SEQ ID NO: 26.

11. The method of claim 9 or 10 wherein the protein is trypsin-digested.

12. A method for regenerating a plant comprising:
    a) harvesting a plant cell or tissue from a first plant;
    b) contacting said plant cell or tissue with an AGP composition effective for fostering somatic embryogenic competence; and
    c) regenerating a second plant from said plant cell or tissue of step (b).

13. The method of claim 12 comprising, prior to step (b), the step of transforming said plant cell or tissue whereby a transformed plant is regenerated.

14. The method of claim 12 or 13 wherein the plant is cotton.

15. The method of claim 14 wherein the cotton plant is a variety selected from the group consisting of Upland cotton, Pima cotton, Egyptian cotton, Sea Island cotton, *G. hirsutum*, *G. barbadense*, tree cotton, Creole cotton, Levant cotton, Sturt's desert rose cotton, Thurber's cotton, and Hawaii cotton.

16. The method of claim 14 wherein the cotton plant is of an elite cotton line.

17. The method of any of claims 14 - 16 wherein the AGP composition comprises an embryogenic AGP of a cotton variety.

18. The method claim 17 wherein the AGP composition comprises pro-embryogenic AGP of a hydrophobic fraction of embryogenic AGP.

19. The method of claim 17 wherein the AGP composition effective for fostering somatic embryogenesis comprises pro-embryogenic AGP selected from the group consisting of de-glycosylated and de-arabinosylated AGP.

20. The method of claim 19 wherein the pro-embryogenic AGP is a protein having the amino acid sequence of SEQ ID NO: 25.

21. The method of claim 19 wherein the pro-embryogenic AGP is a protein having the amino acid sequence of SEQ ID NO: 26.

22. The method of claim 20 or 21 wherein the protein is trypsin-digested.

23. A pro-embryogenic AGP composition comprising a hydrophobic fraction of embryogenic AGP of cotton.

24. The composition of claim 23 wherein the AGP is de-glycosylated or de-arabinosylated.

25. A pro-embryogenic AGP composition comprising a protein comprising a phytocyanin-like domain of an embryogenic AGP.

26. A pro-embryogenic AGP composition according to claim 25 comprising a protein having the amino acid sequence of SEQ ID NO: 25.

27. The composition of claim 26 comprising a trypsin digest of the protein of SEQ ID No: 25.

28. A pro-embryogenic AGP composition according to claim 25 comprising a protein having the amino acid sequence of SEQ ID NO: 26.

29. The composition of claim 28 comprising a trypsin digest of the protein of SEQ ID No: 25.

30. A method for making an AGP composition useful for fostering somatic embryogenic competence comprising:
    a) providing embryogenic callus; and
    b) harvesting AGP from said embryogenic callus.

31. The method of claim 30 comprising the added step of fractionating the AGP of step (b) into hydrophilic and hydrophobic fractions and retaining the hydrophobic fraction.

32. A method of making pro-embryogenic AGP by expressing a protein comprising a phytocyanin-like domain of an embryogenic AGP.

33. The method of claim 32 wherein the protein has the amino acid sequence of SEQ ID No: 25.

34. The method of claim 32 wherein the protein has the amino acid sequence of SEQ ID NO: 26.

35. The method of claim 32 or 33 comprising the added step of contacting the expressed protein with trypsin.